32. The cytological identification of the chromosomes associated with the 'R-golden' and 'B-liguleless' linkage groups in Zea mays. Barbara McClintock and Henry E. Hill, Cornell University.

The smallest chromosomes of the normal set (Science, vol. 69, p. 629, 1929) carries the gene of the *r-g* linkage group. $2n + 1$ plants triplex for this chromosome give trisomic ratios for the factor pair *R-r* when selfed, sib-crossed, and back-crossed. These plants showed disomic ratios for *c-wx*, *su*, *b*, *y*, *gl*$_1$-*v*$_6$, *pr*, and *a*. Plants triplex for the *r-g* chromosome differ only slightly in appearance from the normal diploids. In $2n + 1$ plants the extra chromosome is transmitted through one-third of the eggs. Only a small percentage of $n + 1$ pollen grains function in competition with *n* grains (*rr* ♀ × *RRr* ♂ gave 941 colored to 486 colorless kernels, 2:1 expected; *rr* ♀ × *Rrr* ♂ gave 1392 colored to 2685 colorless kernels, 1:2 expected). The fourth largest chromosome carries the genes of the *b-lg* linkage group. $2n + 1$ plants triplex for this chromosome give trisomic ratios for *v*$_4$, *b*, and *lg*. These $2n + 1$ individuals show a markedly decreased vigor. The extra chromosome is carried through one-fourth of the eggs, but is seldom transmitted through the pollen (*lglg* ♀ × *LgLglg* ♂ gave 344 *Lg*: 163 *lg*, 2:1 expected; *lglg* ♀ × *Lglglg* ♂ gave 276 *Lg*: 542 *lg*, 1:2 expected). The genetic investigations have been undertaken with the cooperation of Marcus M. Rhoades and George W. Beadle.